

## **REMARKS**

This paper is filed in response to the Office Action dated November 22, 2011. Claims 1, 40 and 42 are amended. No new matter is added.

Upon entry of the above amendments, Claims 1-6, 8-11, 13, 14, 16-24, 27-30, 32-36 and 39-45 will be pending in this application, of which, Claims 3, 8, 9, 13, 14, 16-22 and 28 are withdrawn

In the accompanying listing of claims, added text is underlined. Deleted text is stricken through or enclosed in double square brackets. This listing replaces all prior versions and listings of the claims.

### **Discussion of the amendments**

The amendments to Claims 1, 40 and 42 are made to clarify the subject matter of the claims in the interest of expediting the prosecution of this application.

Claims 1, 40 and 42 are amended to delete “carbonate” and add “cross-linked,” “on a substrate,” and “organic” and to amend the use of commas and semicolons as requested by the Examiner.

Support for these amendments can be found, for example, at paragraphs [0001] - [0003], [0025], [0051] and original Claim 41 of the published application.

### **Rejection under 35 USC 112, Second Paragraph**

The Examiner has rejected Claims 1, 2, 4-6, 10, 11, 23, 24, 27, 29, 30, 32-36 and 39-45 under 35 USC 112, Second Paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. In particular, the Examiner indicates the use of the language “low molecular weight” and “enhance” and a particular use of semicolons renders the claims unclear.

#### *Low molecular weight amines*

The Examiner describes the language “low molecular weight” when used in Claims 1, 10, 11, and 40 as part of the phrase, “low molecular weight amines,” as unclear. The Examiner then

used the amines recited in the specification as the "low molecular weight amines for examination.

The Applicants respectfully disagree with the position taken by the Examiner. The MPEP explains:

The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph. *Seattle Box Co., v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984). *Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification . . .* When a term of degree is presented in a claim, first a determination is to be made as to whether the specification provides some standard for measuring that degree. (MPEP 2173.05(b), emphasis added.)

In the present application, the specification recites:

Suitable adhesion promoters include . . . low molecular weight amines *such as* ethylene diamine, diethylene tetraamine, triethylene tetraamine (TETA), tetraethylene pentamine, pentaethylene hexamine, piperazine, aminoethylpiperazine, 1,4-bis(3-aminopropyl) piperazine, N,N'-bis(3-aminopropyl)ethylenediamine, 4,9-dioxa-1,12-dodecanediamine, 2,2'-(ethylenedioxy)bis(ethylamine), 4,7,10-trioxatridecane-1,13-diamine (TODA), 4,7-dioxadecane-1,10-diamine (DODA), polyetheramine T 403, N,N-bis (3-aminopropyl)-ethylene diamine, 3-2(2-aminoethyl) aminopropyl amine, dipropyltriamine and 4,4'-diamino-dicyclohexylamine; aminosilanes such as trimethoxysilyl(propyl)diethylenetriamine . . . or combinations thereof. ([0045] of the published application, emphasis added.)

A person of skill in the art reading the claims and the specification would understand this paragraph as providing a standard for measuring the meaning of the phrase "low molecular weight amines" by reciting a set of 18 compounds. The molecular weight of each of these named compounds would be known or readily obtained by one of skill in the art, and the person of skill would identify them as being amines having a molecular weight of less than about 1000 dalton. Because a person of skill in the art would understand what is claimed regarding "low molecular weight amines," the language is not unclear, and the Applicants respectfully request that the rejection based on the use of this language be withdrawn.

*Enhance adhesion; adhesion of the activated coating . . . has been enhanced*

The Examiner describes the words “enhance” and “enhanced,” in Claims 1, 40 and 42 as being “relative term[s] which render[] the claim indefinite.” (Page 3 and page 5 of the present Office Action.)

The Applicants respectfully disagree with the Examiner and believes that the language is clear, definite, and understood by one of skill in the art. As a preliminary matter, the Applicants note that the word “enhance” and its related forms are not used in isolation in the present application, but are used in the context of describing adhesion. Such language is well known to, and understood by, those of skill in the art. Further, the specification discusses:

The method of the present invention involves activating an organic coating so as to enhance the adhesive properties of at least the surface of the coating towards additional coating layers and/or other entities, for example, adhesives, sealants, fillers, stickers and the like. The term ‘activating’ is used in this context to mean the improvement of the adhesive properties of the organic coating relative to the adhesive properties of that coating, prior to application of the solvent and adhesion promoter. (Paragraph [0022] of the published application.)

The specification of the present application in numerous places also provides a substantial discussion of adhesion promoters acting on the different coatings in various ways, and describes several methods of adhesion testing, for example in the “Analysis” and “Examples” sections (paragraphs [0111] – [0174] of the published application).

The Applicants recognize that use of different language is possible, but the requirement is, as noted above in the discussion of “low molecular weight amines,” whether “one of skill in the art would understand what is claimed, in light of the specification” (MPEP 2173.05(b)). The MPEP also states:

The examiner’s focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is *whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available . . .* he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire.

MPEP 2173.02 (italics added, underlining present in the original)).

As such, the Applicants believe that the language, “enhance adhesion” and “adhesion of the activated coating . . . has been enhanced” as used in Claims 1, 40 and 42 is clear and definite to one of skill in the art and does not require other language to meet the requirements of 35 USC 112, second paragraph. Therefore, the Applicants respectfully request the rejection based on this language be withdrawn.

*Semicolons and commas in Claims 1, 40 and 42*

The Examiner rejected Claims 1, 40 and 42 as being indefinite as to the manner in which the listing of adhesion promoters is presented in the claims. He indicates that the listing is indefinite due to the use of semicolons rather than commas in a list of adhesion promoters, and due to the use of the phrase, “or combinations thereof.” In particular, the Examiner noted the following language in the claims:

**Claim 1**

“comprising applying an activation treatment . . . wherein the activation treatment consists of an organic solvent . . . and halogenated solvents; an adhesion promoter . . . (PEI); amine and . . . glycols; dendrimers; low molecular weight amines; glycidylethers; and aziridines or combinations thereof; . . .”

**Claim 40**

“an activation treatment consisting of an organic solvent . . . and halogenated solvents; an adhesion promoter . . . (PEI); amine and . . . glycols; dendrimers; low molecular weight amines; glycidylethers; and aziridines or combinations thereof; . . .”

**Claim 42**

“an activation treatment . . . consisting of an adhesion promoter . . . (PEI); amine and . . . glycols; dendrimers; low molecular weight amines; glycidylethers; and aziridines or combinations thereof; a solvent . . . and halogenated solvents; . . .”

The Applicants have amended Claims 1, 40 and 42 to replace semicolons with commas and to replace the language “or combinations thereof” with “and combinations thereof,” as shown in the attached listing of claims. The Applicants believe that these amendments address the concerns that the Examiner has expressed regarding the list of adhesion promoters and respectfully request the withdrawal of the rejection related to the list of adhesion promoters.

The Examiner also rejected Claims 2, 4-6, 10, 11, 23, 24, 27, 29, 30, 32-36, 39, 41, 43-45 under 35 U.S.C. 112, second paragraph, as depending from rejected Claims 1, 40 and 42. Upon withdrawal of the § 112 rejection of Claims 1, 40 and 42, the Applicants respectfully request the withdrawal of this rejection for these dependent claims.

### **Reconsideration of the Restriction Requirement**

The Applicants note that in the previously issued Restriction Requirement, dated May 26, 2010, the Examiner required restriction to a single species for an adhesion promoter from the groups described below:

(1) The adhesion promoter is selected from the following claimed species: linear and branched polyethylene imines; amine, epoxy, isocyanate and /or hydroxyl terminated polyether glycols; dendrimers; low molecular weight amines; aminosilanes; glycidylethers; aziridines; acids; high and low molecular weight polyether glycols; aminosilane and epoxy compounds' 4,7,10-trioxatridecone-1,13-diamine an epoxy silanes; aziridines and trimethylolpropanetris(3-aziridino propionate); aziridine an dacids; and aziridine and glycols.

(Restriction Requirement, dated May 26, 2010, Section 1). In response, the Applicants selected "low molecular weight amines."

However, in the present Office Action, the Applicants note that the Coyle reference (US 3,570,748) is presented only as a reference which purportedly discloses "linear and branched polyethylene imines" as adhesion promoters (page 8, section 8, of the present Office Action). The Applicants further note that "linear and branched imines" are a species noted by the Examiner as being a separate species from "low molecular amines" which the Applicants had chosen for initial examination.

The citation of a reference for its use of "linear and branched polyethylene imines" leads the Applicants to believe that the Examiner now recognizes that the two groups of compounds are sufficiently related for citation of references. Therefore they are not lacking unity, and the examination of the two groups does not result in an undue burden. Therefore, the Applicants respectfully request the group, "linear and branched polyethylene imines" be added to the previously selected "low molecular weight amines" to the examination of the application at this time.

Similarly, the Hasegawa reference (US 4,233,354)) is presented only as a reference which purportedly discloses “amine and/or hydroxyl terminated polyether glycols” as adhesion promoters (page 12, section 10, of the present Office Action). The Examiner identifies only “polyethylene glycol” as an adhesion promoter in Hasegawa. (Page 12, section 10 of the present Office Action). Because polyethylene glycols generally are not normally classified as “low molecular weight amines,” but would be considered to fit in the category of “amine and/or hydroxyl terminated polyether glycols” recited in Claim 1 as an adhesion promoter, the Applicants are again led to believe the two groups of compounds are sufficiently related for citation of references. Therefore, the two groups are not lacking unity, and the examination of the two groups does not result in an undue burden. Therefore, the Applicants request the group, “amine and/or hydroxyl terminated polyether glycols” be added to the previously selected “low molecular weight amines” to the examination of the application at this time.

### **Rejection under 35 USC 103**

#### *References Birchall and Coyle*

The Examiner rejects Claims 1-2, 23-24, 27, 29-30, 32-36 and 39-45 under 35 U.S.C. 103(a) as being unpatentable over Birchall et al. (US 3,839,078, “Birchall”) in view of Coyle et al. (US 3,570,748, “Coyle”).

#### Claim 1

As a preliminary matter, the Applicants note that the Examiner has acknowledged that “US’078 [Birchall] fails to teach an adhesion promoter which has a nucleophilic alcohol or *amine group*.” (Page 12, section 10 of the present office action, emphasis added.) As noted above, the claims are presently restricted to *adhesion promoters which are low molecular weight amines*. Further, as noted below, Coyle is used by the Examiner to disclose “linear and branched polyethylene imines” (page 8, section 8 of the present Office Action), rather than low molecular weight amines. As such, together, Birchall and Coyle fail to disclose all of the elements of restricted Claim 1. However, for completeness of argument, and in anticipation of the reconsideration of the restriction requirement, the Applicants provide the following analysis and

reasoning as to why Claim 1 with the reintroduction of unselected species is patentable over Birchall and Coyle.

Claim 1 recites, “A method of activating *a cross-linked organic coating* which is a polyurethane, epoxy, polyester and/or acrylic coating *on a substrate* to enhance adhesion of the coating *to a further organic coating and/or to other entities selected from adhesives, sealants, pressure sensitive decals and logos* comprising applying an activation treatment to the surface of the organic coating . . . .” (Claim 1, emphasis added.)

While Birchall discloses “a method of *coating a substrate with aluminum phosphate*” (Birchall, abstract and column 1, lines 3 and 4, emphasis added) and “the coating of organic plastic films . . . with aluminium phosphate” (Birchall, column 8, lines 6-11, British spelling in original), and that, “film . . . include[s] unitary films, i.e. films fabricated from a single component, laminated films formed by bonding together a plurality of film layers of the same or different chemical composition, and foamed films produced by incorporation of a suitable blowing agent into the film-forming melt” (Birchall, column 8, lines 18-23), Birchall fails to teach a method of “*activating a . . . coating . . . on a substrate* to enhance adhesion of the coating *to a further organic coating and/or to other entities selected from adhesives, sealants, pressure sensitive decals and logos,*” as required by Claim 1.

Further, Birchall provides no teaching as to how his “aluminum phosphate,” is “a further organic coating and/or [] other entities selected from adhesives, sealants, pressure sensitive decals and logos” as required by Claim 1.

Finally, the Examiner looks to the following language from Birchall as disclosing that “swelling an organic plastics material with a swelling agent like a solvent promotes adhesion” (section 8 of the present Office Action):

*When the substrate is an organic plastics material then to ensure good adhesion of the coating to the plastics material either the plastics surface can be subjected to corona discharge treatment before coating or alternatively a compound which acts as a swelling agent for the plastics material can be added to the coating solution, (chlorophenols for example are the most effective swelling agents for polyester film). The plastics surface can also be treated with the swelling agent prior to coating.*

(Birchall at column 3, lines 38-47, emphasis added). However, here Birchall describes working with a “substrate” (Birchall, column 3, line 38) rather than a “cross-linked organic coating . . . on

a substrate” as required by Claim 1, and Birchall describes “treat[ing] with the swelling agent *prior to coating*” (Birchall, column 3, lines 46-47) rather than “activating a . . . coating . . . on a substrate” as required by Claim 1. As such, Birchall fails to disclose “activating a cross-linked organic coating which is a polyurethane, epoxy, polyester and/or acrylic coating on a substrate” as required by Claim 1.

Turning to Coyle, Coyle does not address the shortcomings of Birchall. Coyle, describes “laminated films comprising *polyalkylene and a nylon* (Coyle at column 1, lines 5-6, emphasis added), rather than the “*polyurethane, epoxy, polyester and/or acrylic coating on a substrate*” (Claim 1, emphasis added) required by Claim 1.

In addition, a person of skill in the art would not be motivated to combine the polyalkylene imines of Coyle with Birchall. While Birchall describes “coating a substrate with aluminum phosphate” (Birchall at column 1, lines 3 and 4), Coyle describes “laminated films comprising polyalkylene and a nylon” (Coyle at column 1, lines 5 and 6), and “the two composite films are joined through a thin-layer of an intermediate adhesion-promoting primer” (Coyle at column 1, lines 56-58) which is an “polyalkylene imines” (Coyle at column 2, line 66). A person of skill in the art would recognize the different materials being used in Birchall as compared to Coyle, and would not expect the adhesion-promoting primer of one to work for the other.

Therefore, Claim 1 is not anticipated by and not obvious over Birchall in view of Coyle, and the Applicants request the withdrawal of the rejection of Claim 1 as obvious over Birchall in view of Coyle.

#### Claims 40 and 42

Independent Claims 40 and 42 disclose limitations substantially related to those of Claim 1. As such, Claims 40 and 42 are also not anticipated and not obvious over Birchall in view of Coyle. Therefore, the Applicants respectfully request the rejection of Claims 40 and 42 as obvious over Birchall in view of Coyle be withdrawn.



Claims 2, 4-6, 10, 11, 23, 24, 27, 29, 30, 32-36, 39, 41, 43-45

Claims 2, 4-6, 10, 11, 23, 24, 27, 29, 30, 32-36, 39, 41, 43-45, at least because of their dependency from Claims 1, 40 and 42, are also not anticipated and not obvious over Birchall in view of Coyle, and the Applicants respectfully request the withdrawal of the rejection of these claims as obvious in view of these references.

*References Birchall, Coyle and Drawert*

The Examiner rejects Claims 4-6 and 10-11 under 35 U.S.C. 103(a) as being unpatentable over Birchall in view of Coyle as applied to Claim 1, and further in view of Drawert et al. (US 3,499,853, "Drawert"). The Examiner relies on Drawert to disclose 4,7,10-trioxatridecane-1,13-diamine (TODA) and 4,7-dioxadecane-1,10-diamine (DODA) as adhesion promoters. The Applicants note, however, that Drawert does not disclose 4,7,10-trioxatridecane-1,13-diamine (TODA) and 4,7-dioxadecane-1,10-diamine (DODA) as *adhesion promoters*. Instead, Drawert discloses 4,7,10-trioxatridecane-1,14-diamine and 4,7-dioxadecane-1,10-diamine *as reagents* in a condensation reaction for producing a thermoplastic adhesive. (*See*, Drawert at column 1, lines 15-22 and 43-67, and column 3, line 68 to column 4, line 15.)

The language in Drawert upon which the present Office Action relies for the disclosure of "TODA and DODA [being] favorable diamines as adhesion promoters" (page 11, section 9 of the present Office Action), namely column 4, lines 2-5 and 11-25 of Drawert, actually refers to the *reaction product* of DODA or TODA in the Drawert reaction system. This description of the reaction product can be seen, for example, where Drawert teaches, "The *polyamides* of the invention *comprising dimeric fatty acid* and a mixture of ethylene diamine and an aliphatic diamine . . . are characterized . . . by good adhesive properties" (Drawert, column 4, lines 16-19, emphasis added).

As such, a skilled person would not be motivated to combine Drawert with Birchall and Coyle. In addition, Drawert does not cure the shortcomings of Birchall, described above.

Therefore, Claims 4-6 and 10-11 are not anticipated by and not obvious over Birchall in view of Coyle and Drawert, and the Applicants respectfully request the withdrawal of this rejection.

*References Birchall and Hasegawa*

As a preliminary matter, the Applicants note that the Examiner has acknowledged that “US’078 [Birchall] fails to teach an adhesion promoter which has a nucleophilic alcohol or amine group.” (Page 12, section 10 of the present office action.) As noted above, the claims are presently restricted to *adhesion promoters which are low molecular weight amines*. Further, as noted below, Hasegawa is used by the Examiner to disclose a “nucleophilic alcohol or amine group,” namely, “polyethylene glycol” (page 12, section 10 of the present Office Action), rather than a low molecular weight *amine*, as required by Claim 1 (emphasis added). As such, together, Birchall and Hasegawa fail to disclose all of the elements of restricted Claim 1. However, for completeness of argument, and in anticipation of the reconsideration of the restriction requirement, the Applicants provide the following analysis and reasoning as to why Claim 1 with the reintroduction of the unselected species is patentable over Birchall and Hasegawa.

The Examiner rejects Claims 1-2, 4-6, 23-24, 27, 29, 30, 32-36, 39-45 under 35 U.S.C. 103(a) as being unpatentable over Birchall in view of Hasegawa et al. (US 4,233,354, “Hasegawa”). The Examiner relies on Hasegawa to teach polyethylene glycol as an adhesion promoter. (Section 10 of the present Office Action.) The Applicants note, however, that Hasegawa uses polyethylene glycol as an additive incorporated into the *incompletely polymerized polyester* (see, e.g., Hasegawa at column 3, lines 18-22, emphasis added), rather than as part of “applying an activation treatment to the surface of the organic coating” as required by Claim 1. As such, the use of polyethylene glycol in Hasegawa is so far removed from Birchall that a person of skill in the art would not have been motivated to combine its teaching with Birchall. In addition, Hasegawa does not cure the shortcomings in Birchall, as noted above in the discussion of the Coyle reference.

Therefore, Claim 1 is not anticipated by and not obvious over Birchall in view of Hasegawa, and the Applicants request the withdrawal of the rejection of Claim 1 as obvious over Birchall in view of Hasegawa.

Claims 40 and 42

Independent Claims 40 and 42 disclose limitations substantially related to those of Claim 1. As such, Claims 40 and 42 are also not anticipated and not obvious over Birchall in view of

and Hasegawa. Therefore, the Applicants respectfully request the rejection of Claims 40 and 42 as obvious over Birchall in view of Hasegawa be withdrawn.

Claims 2, 4-6, 10, 11, 23, 24, 27, 29, 30, 32-36, 39, 41, 43-45

Claims 2, 4-6, 10, 11, 23, 24, 27, 29, 30, 32-36, 39, 41, 43-45, at least because of their dependency from Claims 1, 40 and 42, are also not anticipated and not obvious over Birchall in view of Hasegawa, and the Applicants respectfully request the withdrawal of the rejection of these claims as obvious in view of these references.

Conclusion

The Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding office action.

In light of the above remarks, the Applicants respectfully request reconsideration and withdrawal of the outstanding objections and rejections.

\* \* \* \*

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or may contain characterizations of claim scope or referenced art, the Applicants are not conceding that any previously pending claims are unpatentable in view of the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

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